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54 Series of metal sections for the construction of continuous façades.

57 The series comprises vertical hollow uprights (1) having four essentially vertical sides (3, 4, 5, 6) provided with a shaped appendix (13) protruding from one of said sides and horizontal hollow cross-beams (2) having four essentially perpendicular sides (16, 17, 18, 19) provided with a shaped appendix (24) protruding from one of said sides. The latter constitutes a housing seat for a sliding bar (27) which can be clamped in position and against one side (6) of an adjacent upright (2) for the reciprocal clamping of cross-beam (2) and upright (1).

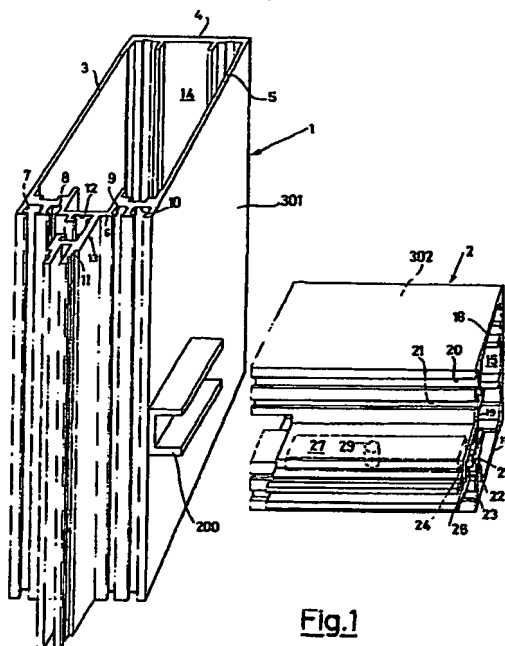


Fig.1

The present invention relates to a series of metal sections for the construction of continuous façades.

The tendency is known of using metal sections of various shapes for the construction of continuous façades by means of the partial or total facing of the wall outlines of the buildings themselves.

The object of the present invention is that of accomplishing a new series of sections for the above use.

According to the invention such object is attained through a series of metal sections for the construction of continuous facades comprising first and second main sections for the formation of a supporting structure, characterized in that said first sections are constituted by vertical hollow uprights having four essentially vertical sides provided with a shaped appendix protruding from one of said sides and said second sections are constituted by horizontal hollow cross-beams having four essentially perpendicular sides provided with a shaped appendix protruding from one of said sides, said appendix of said cross-beams constituting a housing seat for a sliding bar which can be clamped in a position against one side of an adjacent upright for the reciprocal clamping of cross-beam and upright.

The use of the above uprights and cross-beams with their corresponding clamping bars allows the accomplishment of an extremely simple supporting structure wherein the fastening of the cross-beams to the uprights does not require particular processing steps, is highly functional, very fast in its application and adjustment and leaves the cross-beams with the possibility of expanding and contracting longitudinally in relation to temperature swings.

With the two main sections mentioned above it is also possible to associate other sections of the series with the object of accomplishing frames for openable windows, frames for fixed windows, frames for panels, blend stops and in general all those elements which may contribute to the accomplishment of a metal façade that is functional and, at the same time, endowed with aesthetic qualities.

The series of sections according to the invention is illustrated in the enclosed drawings, wherein:

Fig.s 1-3 illustrate in succession reciprocal coupling steps between an upright and a cross-beam;

Fig.s 4-6 illustrate cross-sectional views of the above reciprocal coupling steps between an upright and a cross-beam;

Fig.s 7 -13 illustrate horizontal cross-sectional views of different coupled sections of the series, made on a plane above the cross-beam;

Fig.s 14, 15 illustrate vertical cross-sectional

views of coupled sections of the series.

With reference to the mentioned figures, the series of sections comprises first and second main sections constituted by a vertical upright 1 and by a horizontal cross-beam 2 perpendicular to one another and reciprocally clampable for the accomplishment of the façade's supporting structure.

With reference to Fig.s 1-8 and 10, 11, each upright 1 comprises a casing 301 with an internal cavity 14 surrounded by three smooth sides 3, 4, 5 arranged at right angles to one another and a fourth side 6 shaped with a plurality of cavities 7, 8, 9, 10 and an appendix 13 with a cavity 12 and a terminal fork 11.

With reference to Fig.s 1-6 and 14, each cross-beam 2 comprises a casing 302 with an internal cavity 15 surrounded by three smooth sides 16, 17, 18 arranged at right angles to one another and a fourth side 19 shaped with a plurality of cavities 20, 21, 22, 23 and an appendix 24 with a cavity 25 and a terminal fork 26.

As illustrated in Fig. 2, each pair formed by an upright 1 and a cross-beam 2 is clamped in position, with respect to the displacements of the cross-beam 2 towards the inside of the building, by means of a bar 27 which, as shown in Fig.s 2 and 5, can slide in a suitable seat 28 and is provided with a screw 29 for the respective clamping in position. For this purpose the bar 27 slides in the cavity 28 of the cross-beam until it stops against the side 6 of the upright 1.

At the end of this operation, which determines the creation of a clearance 103 for the absorption of any thermal expansion of the cross-beam 2, a free space 30 has been created between upright and cross-beam, which, as illustrated in Fig.s 3 and 6, is covered by a plug 32 accomplished, say, in plastic material (EDPM). During assembly such plug 32 shall, in the areas of contact between upright 1 and cross-beam 2, have to be sealed to prevent water seepage.

Once the supporting structure has been prepared by means of the uprights 1 and the cross-beams 2, the structure may be completed with panes of glass that are fixed 41 and openable 51, panels 42, sundry blend stops 33, 34, 45 and 46, 47 and 48, 38.

The vertical blend stops 33, in aluminium as illustrated in Fig.s 4-7, 9, 12, or those 34 in EDPM material or synthetic rubber, as illustrated in Fig. 8, can be associated with the appendices 13 of the uprights 1 through suitable pressure elements 35, 37.

In particular each metal vertical blend stop 33 is coupled to a pressure element 35 which in turn is connected to the appendix of the upright 1 by means of a thermal insulation element 36 essentially in the shape of an H, which on one side

connects with the fork 11 and on the other side is connected by protrusions of the pressure element 35.

Each vertical blend stop 34 in EDPM is, on the other hand, directly associated with the corresponding appendix 13 of the upright 1 by means of an H-shaped pressure element 37, which on one side connects with the fork 11 and on the other runs in a direction parallel to the blend stop 34 and is contained by end flaps 98 of the blend stop 34.

Similarly, as shown in Figs 14, 15, each metal horizontal blend stop 38 is coupled to a pressure element 39 which in turn is connected to the appendix 24 of the cross-beam 2 by means of an H-shaped thermal insulation element 40, which on one side connects with the fork 26 and on the other side is connected by protrusions of the pressure element 39.

The upright 1 and the cross-beam 2 with the corresponding pressure element 35, 37, 39 are suitable for receiving a fixed pane of glass 41 (Figs 8, 9 and 14), a fixed panel 42 (Fig. 8) or a further section 43 constituting a fixed frame and having an insertion appendix 304 which makes the frame similar to a panel. Such couplings are accomplished with the use of suitable seals indicated in a general way with the reference 44.

As illustrated in Fig. 9, the series also comprises uprights 1 consisting of two separate parts 160, 161 so as to allow thermal expansions conforming with the expansions of the structure of the building. Each part 160, 161 consists of a side 82, 83, remote with respect to the pane of glass 41, which splits to receive an extremity of a seal 81, a pair of rectilinear sides 84, 85 perpendicular to them, and lastly a pair of opposing semi-finished elements 305 which split transversally in the proximity of the panes of glass 41 giving rise to opposite cavities 87 inside which there is housed an element 86 provided with a fork 11 for coupling the two parts of the upright 160, 161, through the H-shaped insulation element 36, to the pressure element 35, in turn connected to the metal blend stop 33.

As illustrated in Figs 12, 13 sections are provided for to form external angles, internal angles, as well as, as illustrated in Fig. 15, to obtain variable angles.

With reference to Fig. 12, the external angle is accomplished by using an upright 90 which comprises three rectilinear sides, a first and a second side 91, 92 at right angles to one another and a third side 95, respectively, whose extremities connect with the sides 91, 92, respectively, by means of coupling sectors 94, 95. Each sector 94, 95 has a set of three cavities 96, 97, 98 with a fork 99 between the latter, which has the same function of the fork 13 with respect to the vertical blend stop

33. The seals 44 inserted in the cavities 98 and those inserted in the corresponding cavities of the pressure elements 35 hold in position an angular aluminium section 100 bent at right angles.

With reference to Fig. 13, the internal angle is accomplished using an upright 101 which comprises three sides 102, 103, 104 at right angles to one another, an oblique coupling 105 aligned along the line dividing into two equal parts the internal angle between the panes of glass 41 and terminating with a fork 106, and coupling sectors 109 provided with two cavities 107, 108. With the fork 10 there is coupled through an H-shaped insulating element 36 a pressure element 111 connected by a vertical blend stop 112.

With reference to Fig. 15, between one pair of cross-beams 2 there is inserted a coupling element formed by two parts 121, 123 connected by an articulated joint at 122 and each comprising an arched side which may be connected to the corresponding arched side. The angle between the two cross-beams 2 is then covered at the façade by a pair of insulating panels 124.

With reference to Figs 10, 11, the possibility is provided for of using window frames which may be opened outward.

In particular, as illustrated in Fig. 10, an openable section 46 has a cavity 114 for the insertion of a sealing gasket 116 of a protruding pane of glass 117 and extends to form a part of the external blend stop separated from the pane of glass 117 by a similar sealing gasket 116.

As illustrated in Fig. 11, a section 118 has a cavity 119 for the insertion of a sealing gasket 120 of a protruding pane of glass 51. In such an embodiment the vertical blend stop consists of two distinct parts, a first part 47 which may be associated with the upright 1, a second part 48 connected to the section 118.

The assembly of the series of sections provides for an initial step wherein, in a known way, the cross-beams 2 are made to slide into anchoring elements 200 fastened with screws 400 to the walls 5 of the uprights 1 so that the walls 17 of the cross-beams 2 are in abutment with the anchoring elements 200. After which, as has already been said, the cross-beams 2 are moved close to the uprights 1 and the bars 27 are made to slide in the corresponding cavities of the cross-beams 2 until they are against the adjacent uprights 1, and lastly they are clamped in position by means of the screws 29. Once the supporting structure has been formed, the horizontal blend stops 38 are applied, and as an alternative the blend stops 33, 34 in case it is desired to apply to the structure fixed panes of glass 41 or fixed panels 42, or blend stops 45, 46 or 47, 48 in the case wherein panes of glass openable outward are applied to the struc-

ture. Such succession of operations then makes for the accomplishment, by using suitable sections, of all the different illustrated solutions.

#### Claims

1. Series of metal sections for the construction of continuous façades, comprising first and second main sections for the formation of a supporting structure, characterized in that said first sections are constituted by vertical hollow up-rights (1) having four essentially vertical sides (3, 4, 5, 6) provided with a shaped appendix (13) protruding from one of said sides and said second sections are constituted by horizontal hollow cross-beams (2) having four essentially perpendicular sides (16, 17, 18, 19) provided with a shaped appendix (24) protruding from one of said sides, said appendix (24) of said cross-beams constituting a housing seat for a sliding bar (27) which can be clamped in a position against one side (8) of an adjacent upright (2) for the reciprocal clamping of cross-beam (2) and upright (1).
2. Series according to claim 1, characterised in that with the appendix (13) of the upright (1) it is possible to associate a vertical metal blend stop (33) through the intermediary of a pressure element (35) and of a thermal insulation element (36).
3. Series according to claim 1, characterised in that with the appendix (13) of the upright (1) it is possible to associate a vertical blend stop (34) in plastic material through the intermediary of a pressure element (37).
4. Series according to claim 1, characterised in that with the appendix (24) of the cross-beam (2) it is possible to associate a horizontal blend stop (38) in plastic material through the intermediary of a pressure element (39).
5. Series according to claim 1, characterised in that said upright (1) consists of two distinct parts (160, 161) so as to allow thermal expansions of the structure of the building.
6. Series according to claim 2, characterized in that said vertical metal blend stop (33) consists of two distinct parts (45, 46), said part (46) being part of a section (114) which can be opened until it protrudes toward the outside of the façade.
7. Series according to claim 2, characterized in that said vertical blend stop (34) in plastic material consists of two parts (47, 48), said part (48) being connected to a further section (118) which can be opened until it protrudes toward the outside of the façade.
8. Series according to claim 1, characterized in that for the accomplishment of an external angle there is provided an upright (90) comprising three rectilinear sides, a first and a second side (91), (92) at right angles to one another and a third side (95), respectively, whose extremities connect with the sides (91, 92), respectively, by means of coupling sectors (94, 95).
9. Series according to claim 1, characterized in that for the accomplishment of an internal angle there is provided an upright (101) comprising three sides (102, 103, 104) at right angles to one another, a rectilinear coupling (105) aligned along the line dividing into two equal parts the internal angle between the panes of glass (41) and terminating with a fork (106), and coupling sectors (109) provided with cavities (107, 108).
10. Series according to claim 1, characterized in that between one pair of cross-beams (2) there is inserted a coupling element formed by two parts (121, 123) connected by an articulated joint at (122) and each comprising an arched side which may be connected to the corresponding arched side of the adjacent part (121, 123).

Tav. I

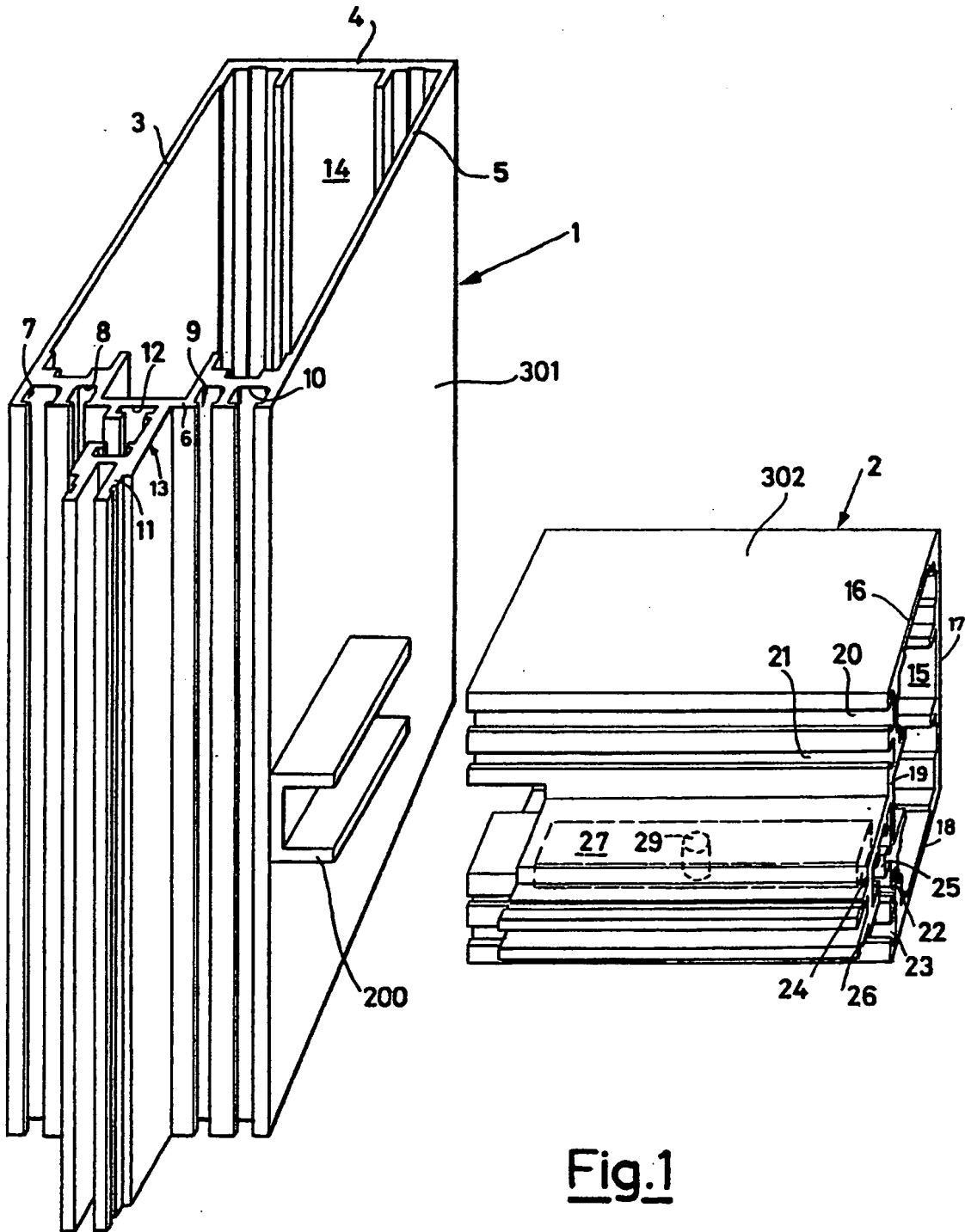


Fig.1

Tav. II

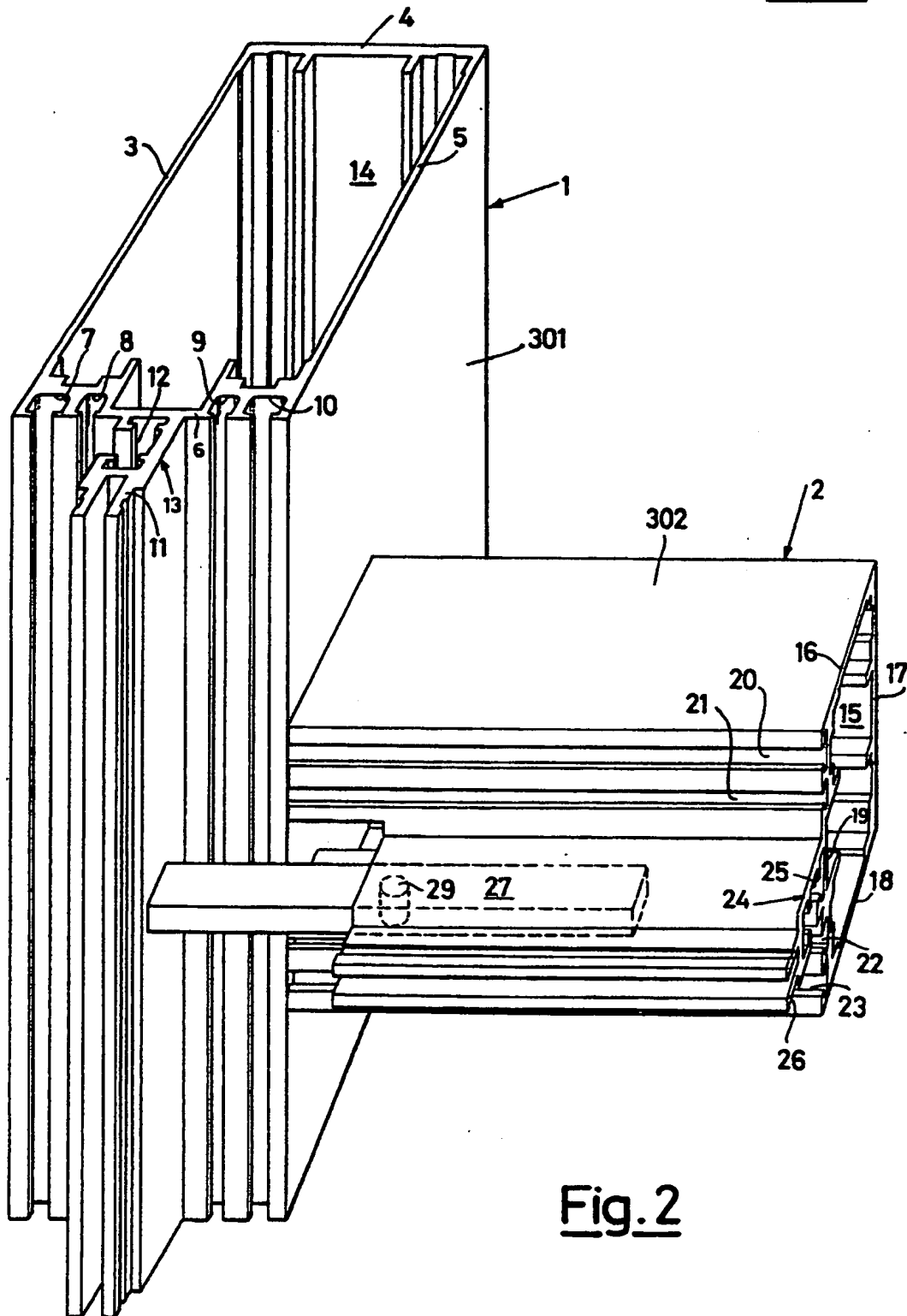


Fig. 2

Tav. III

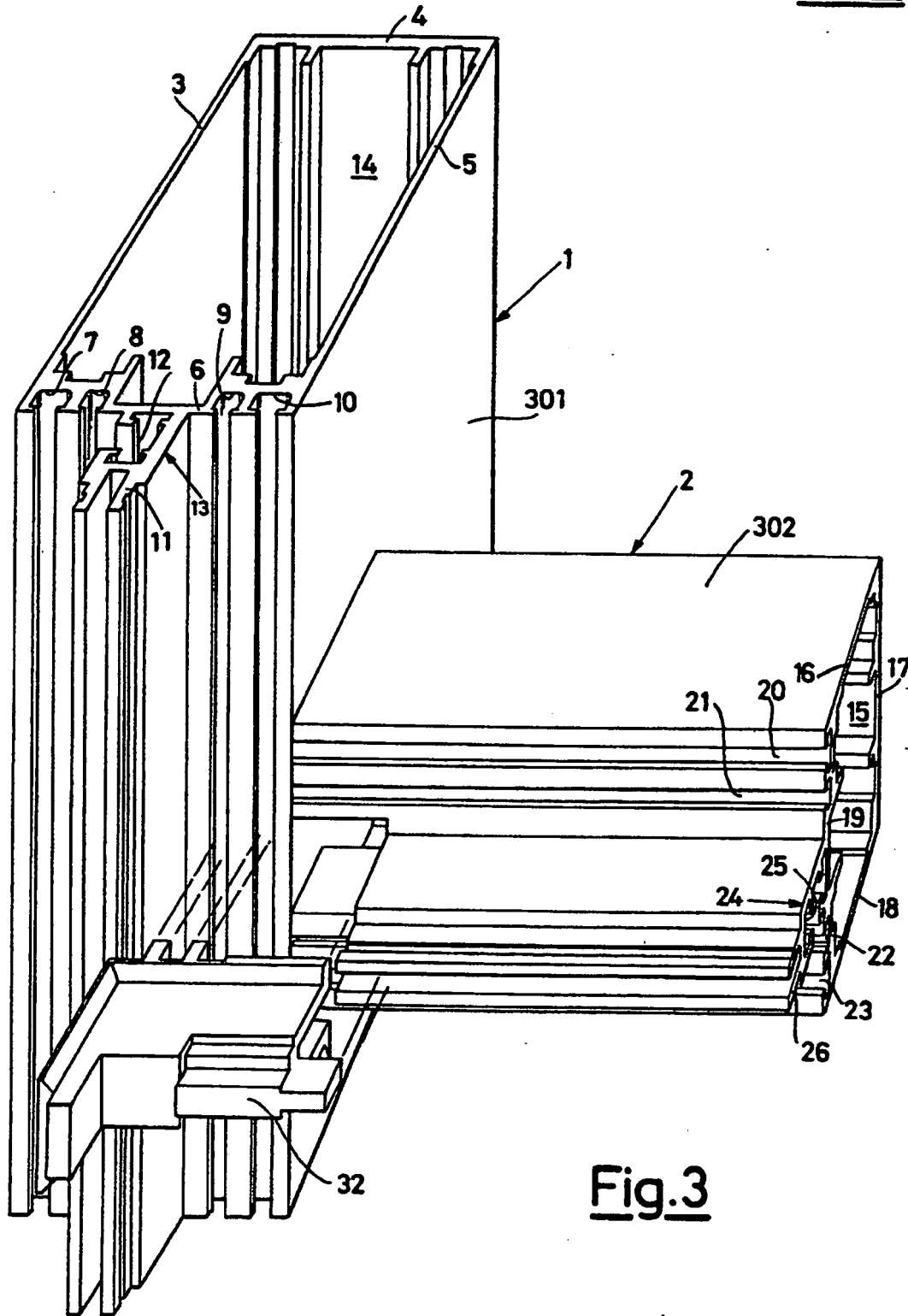
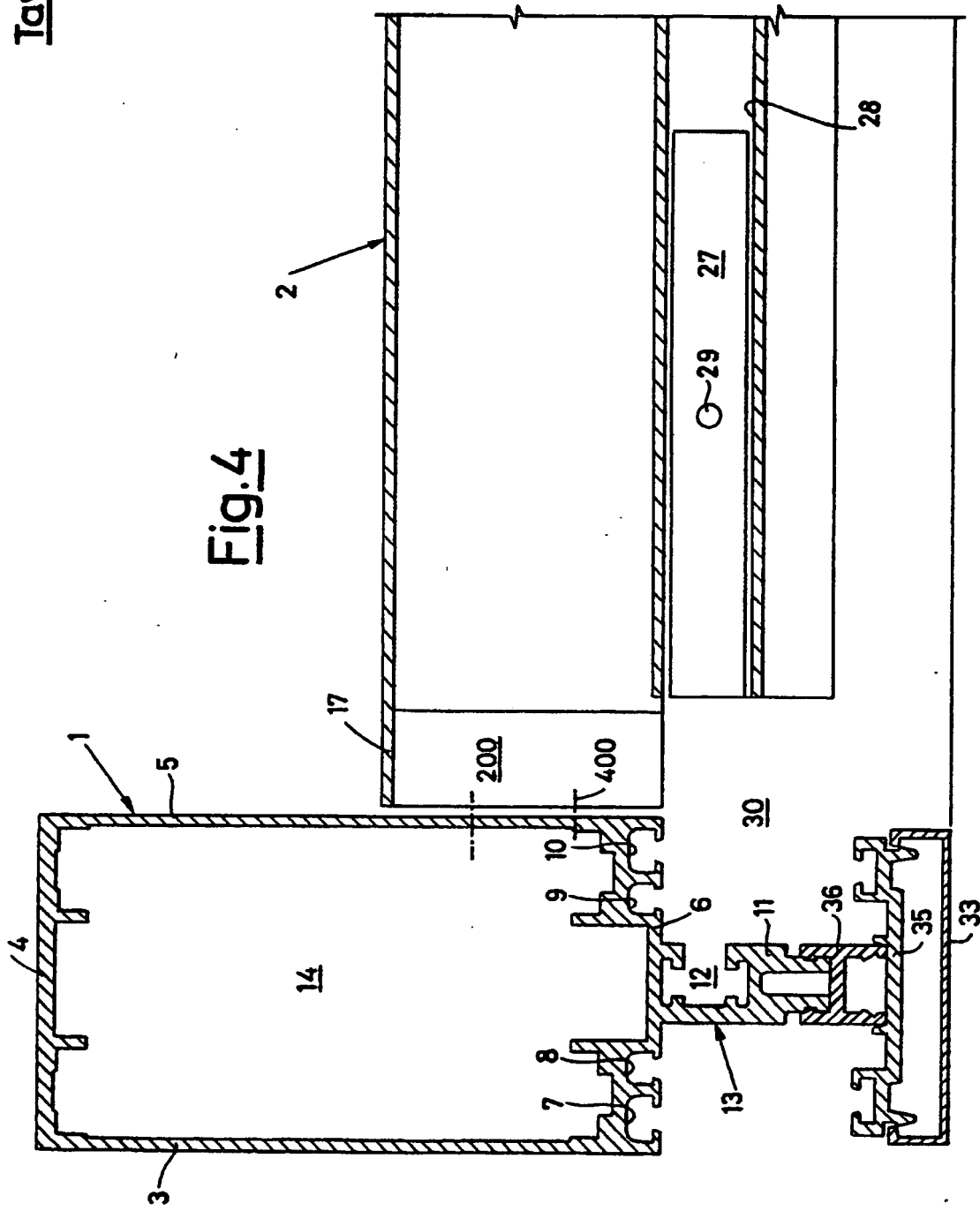


Fig. 3

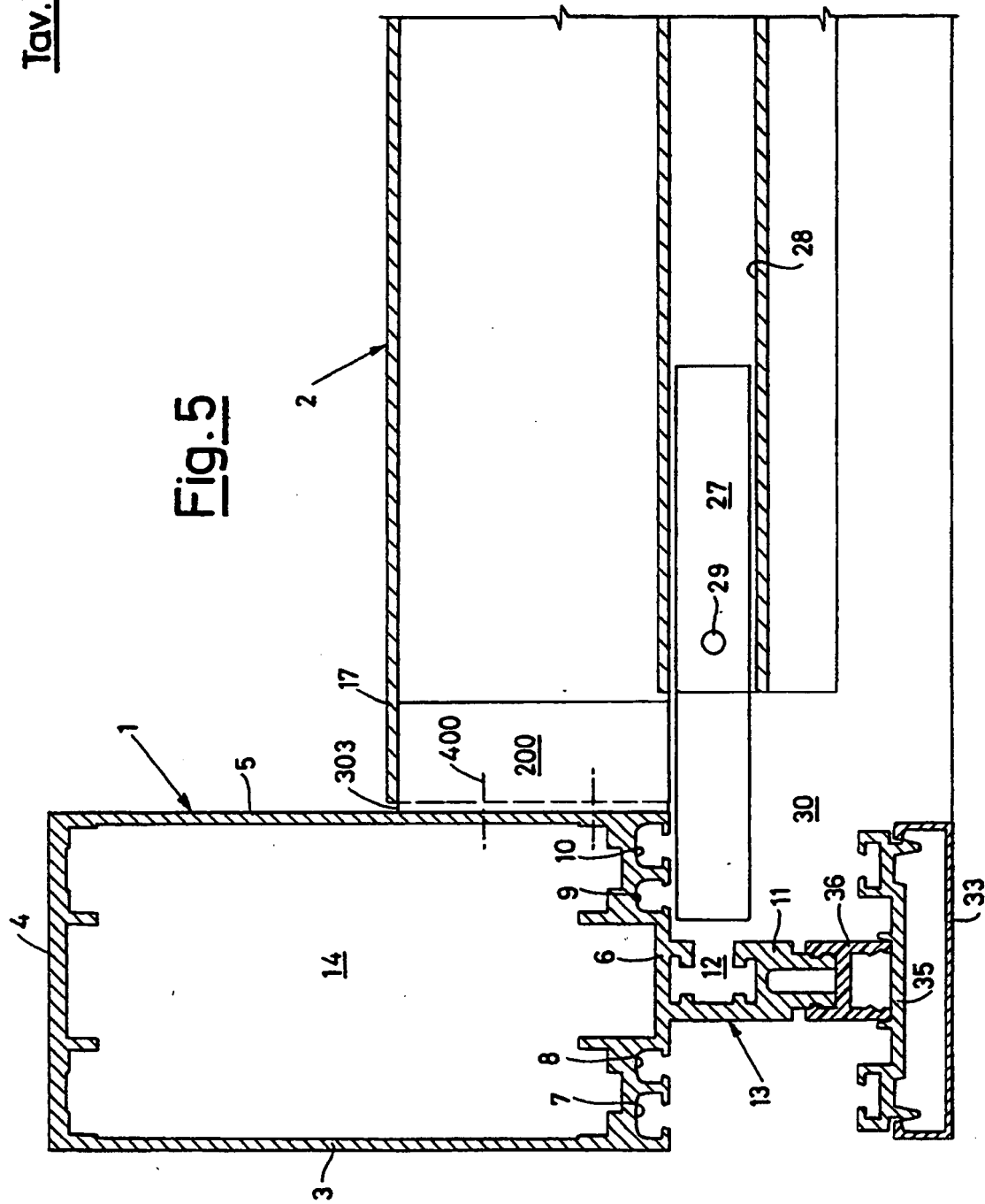
Tav. IV





Tav.V

Fig.5



**Fig. 6**

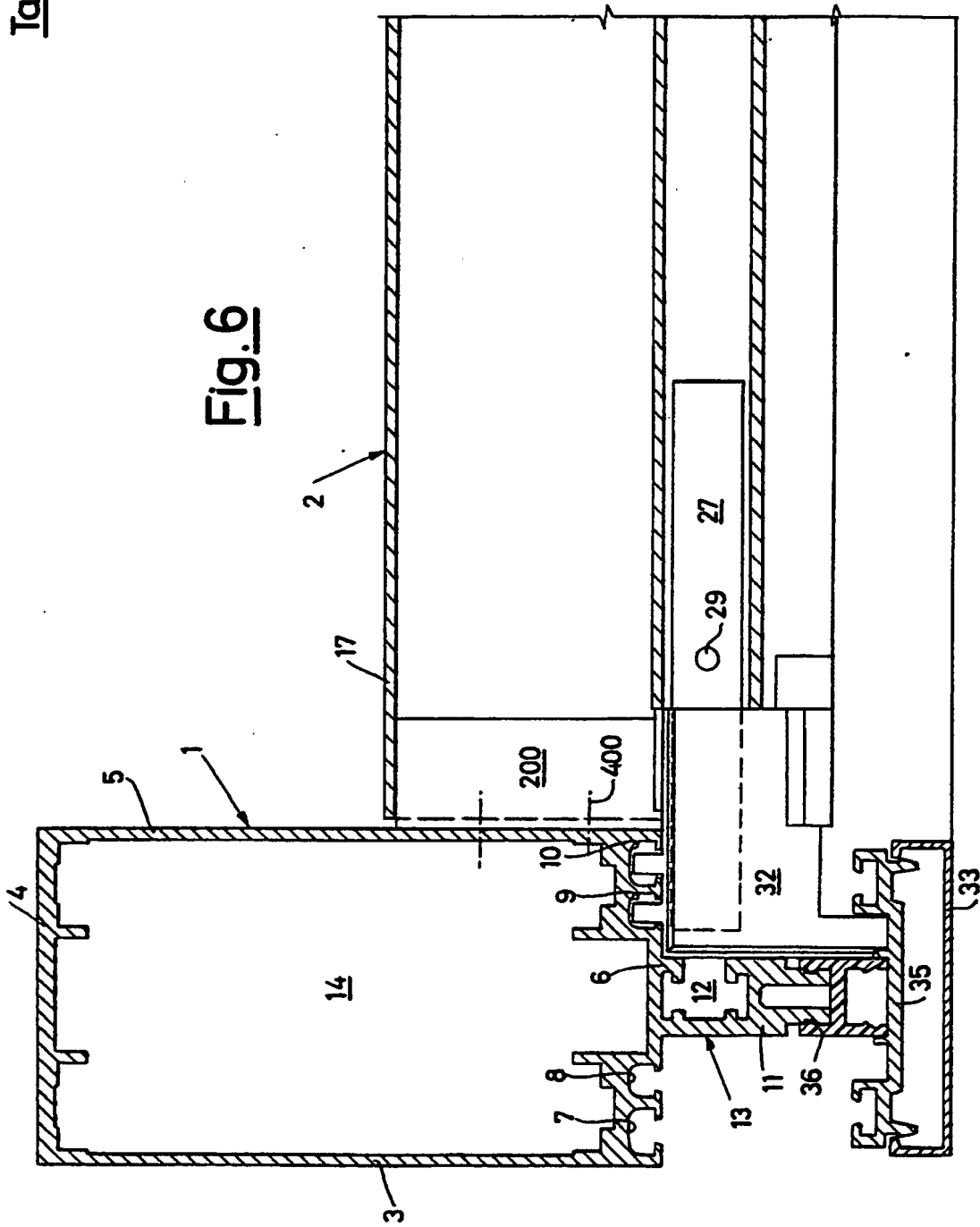
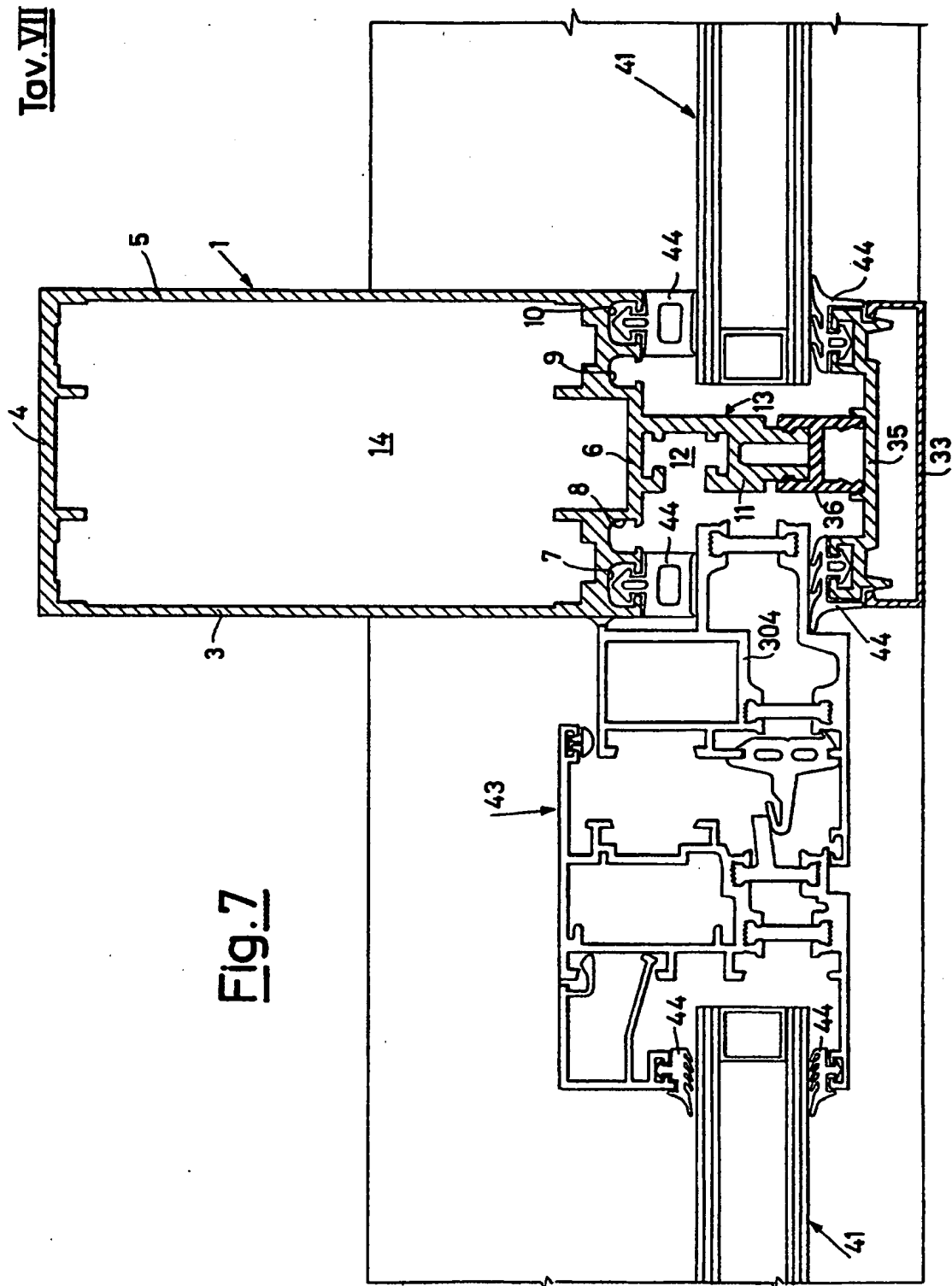


Fig. 7



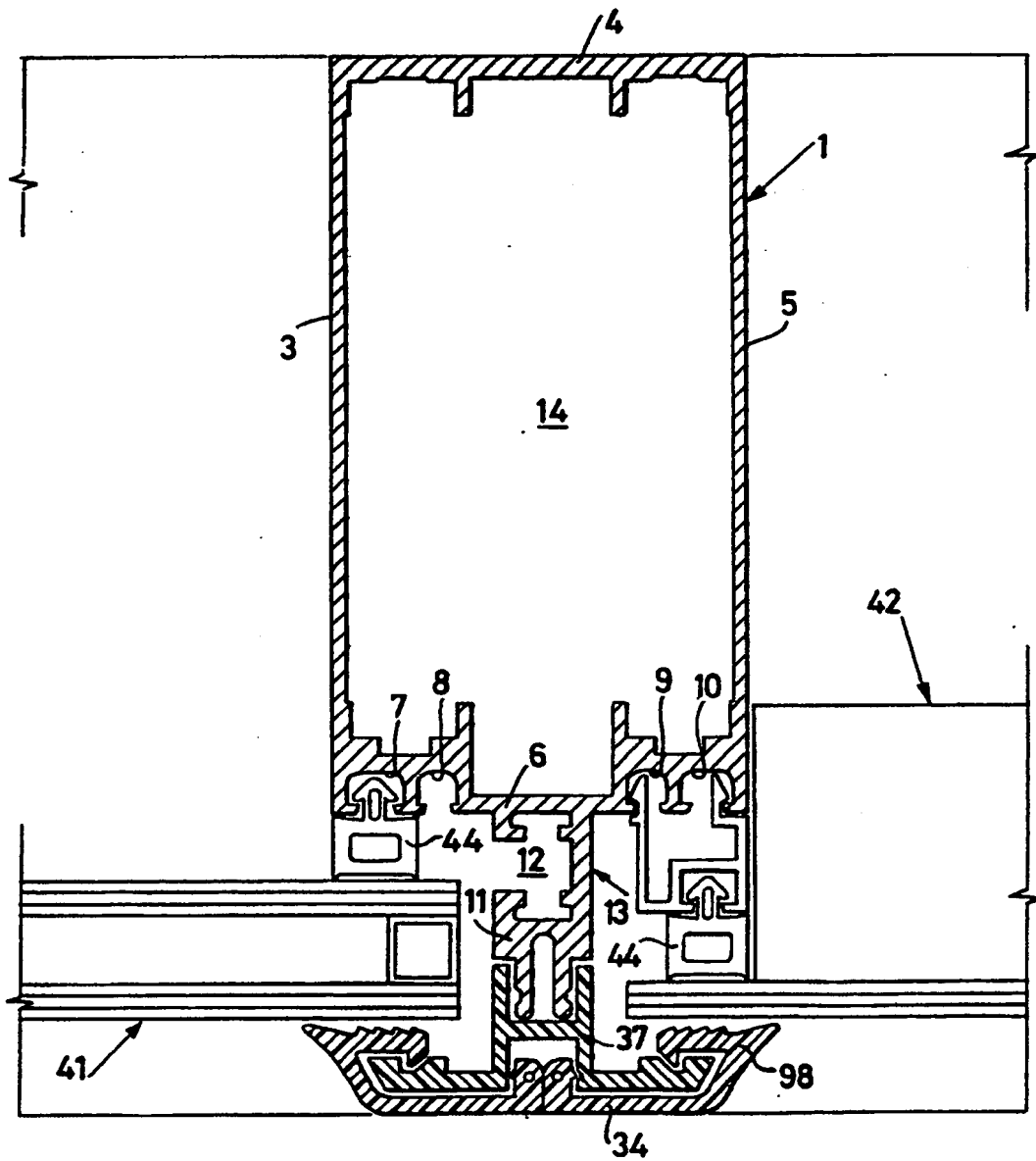


Fig. 8

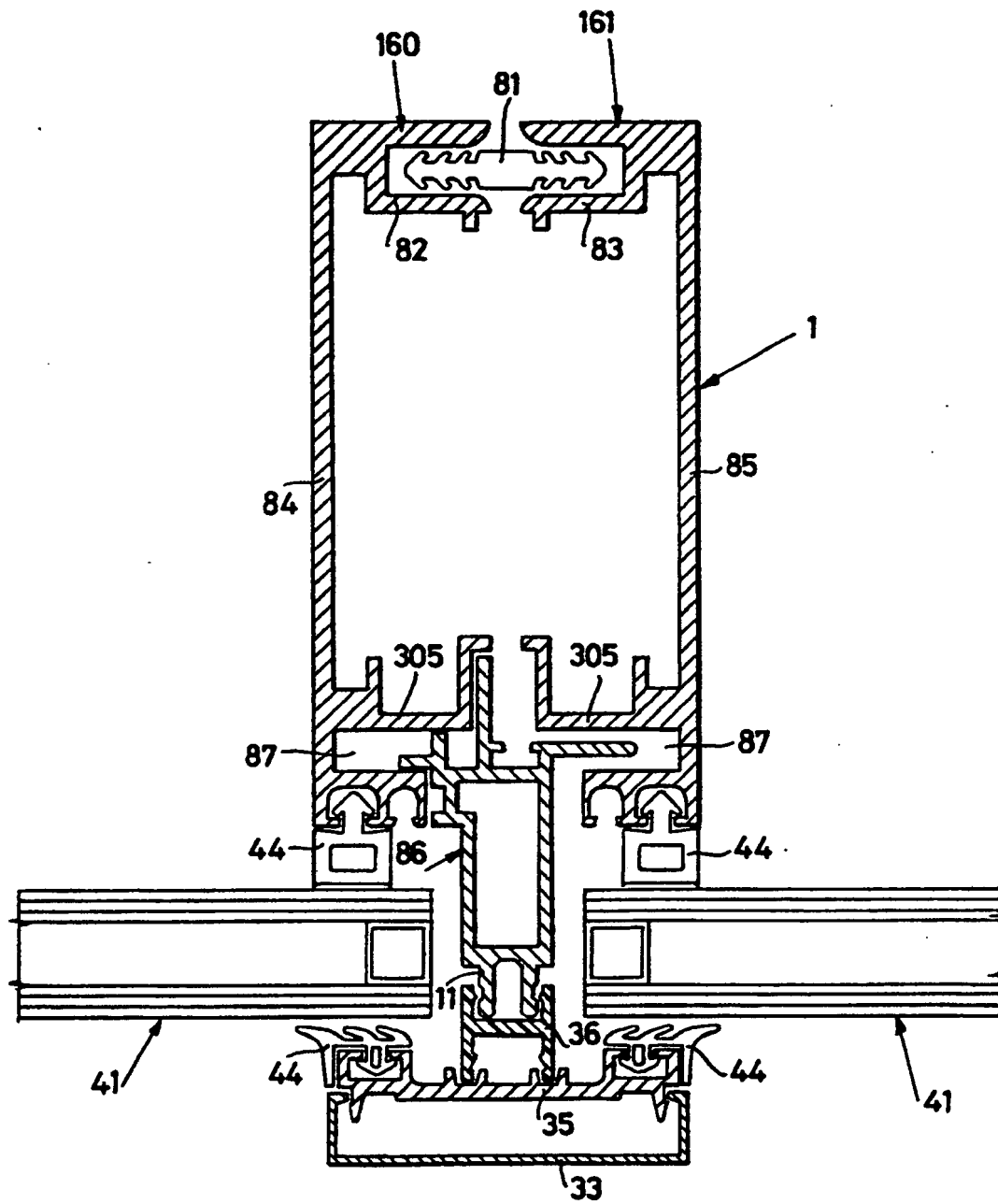


Fig. 9

Tav. X

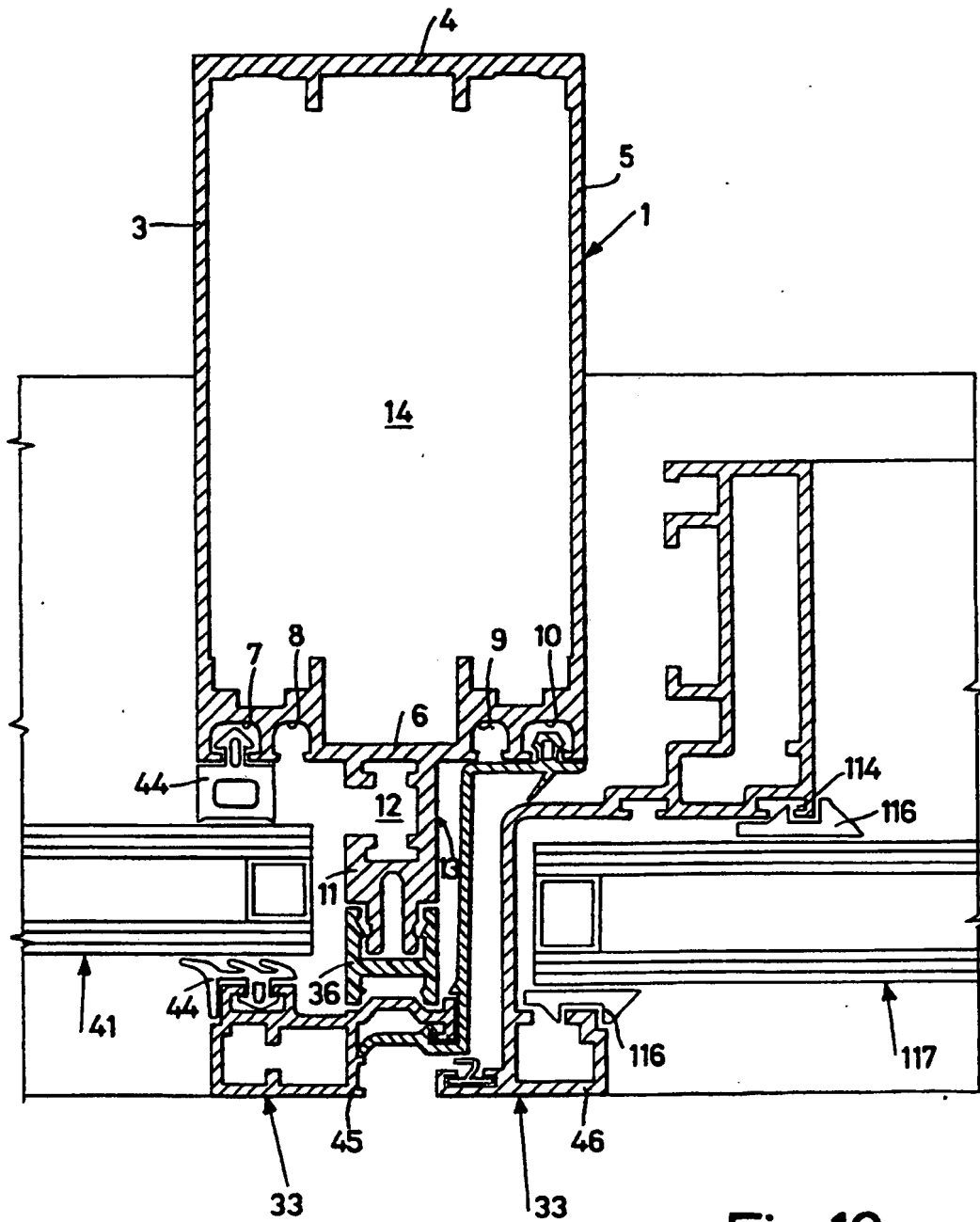


Fig.10

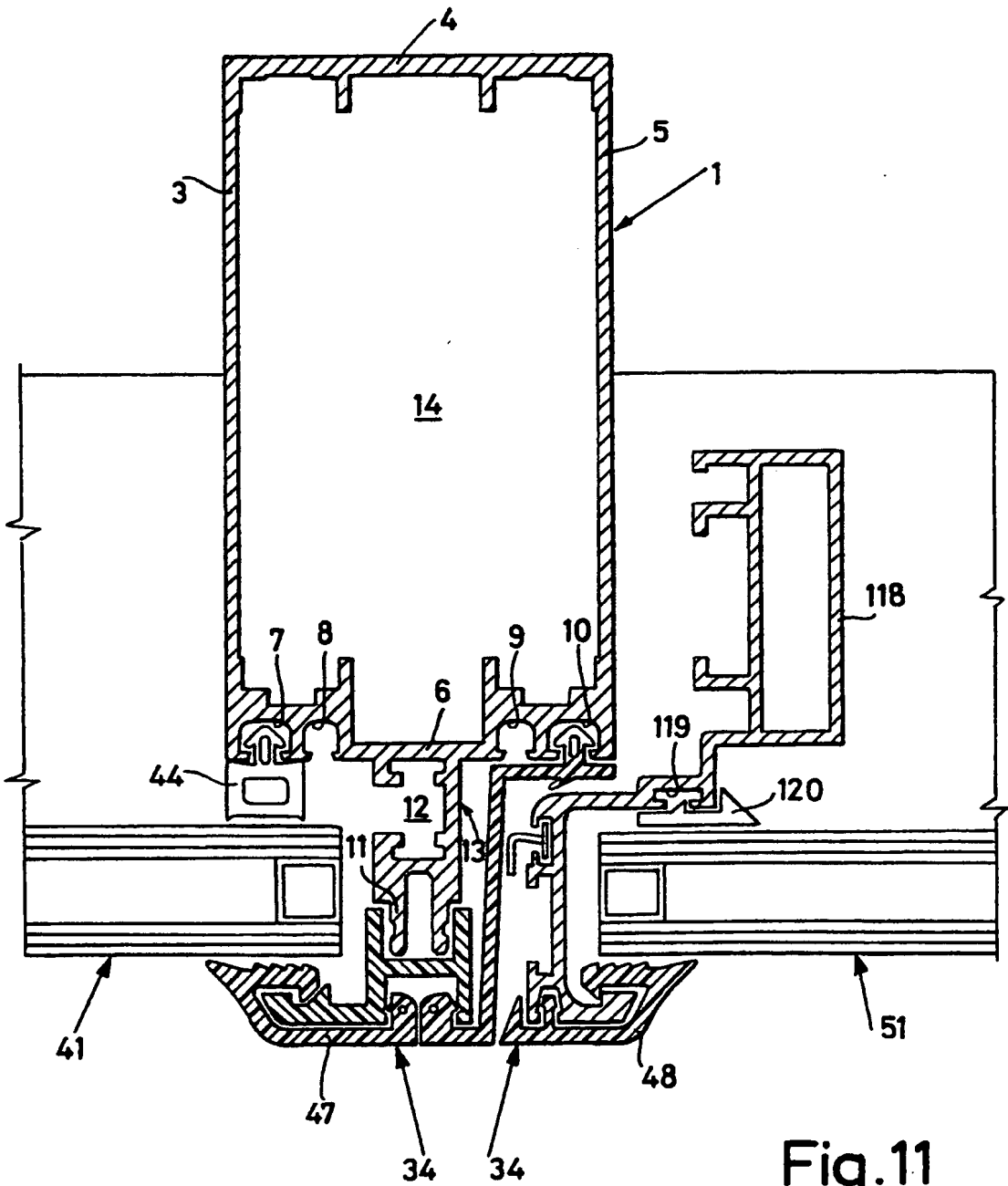
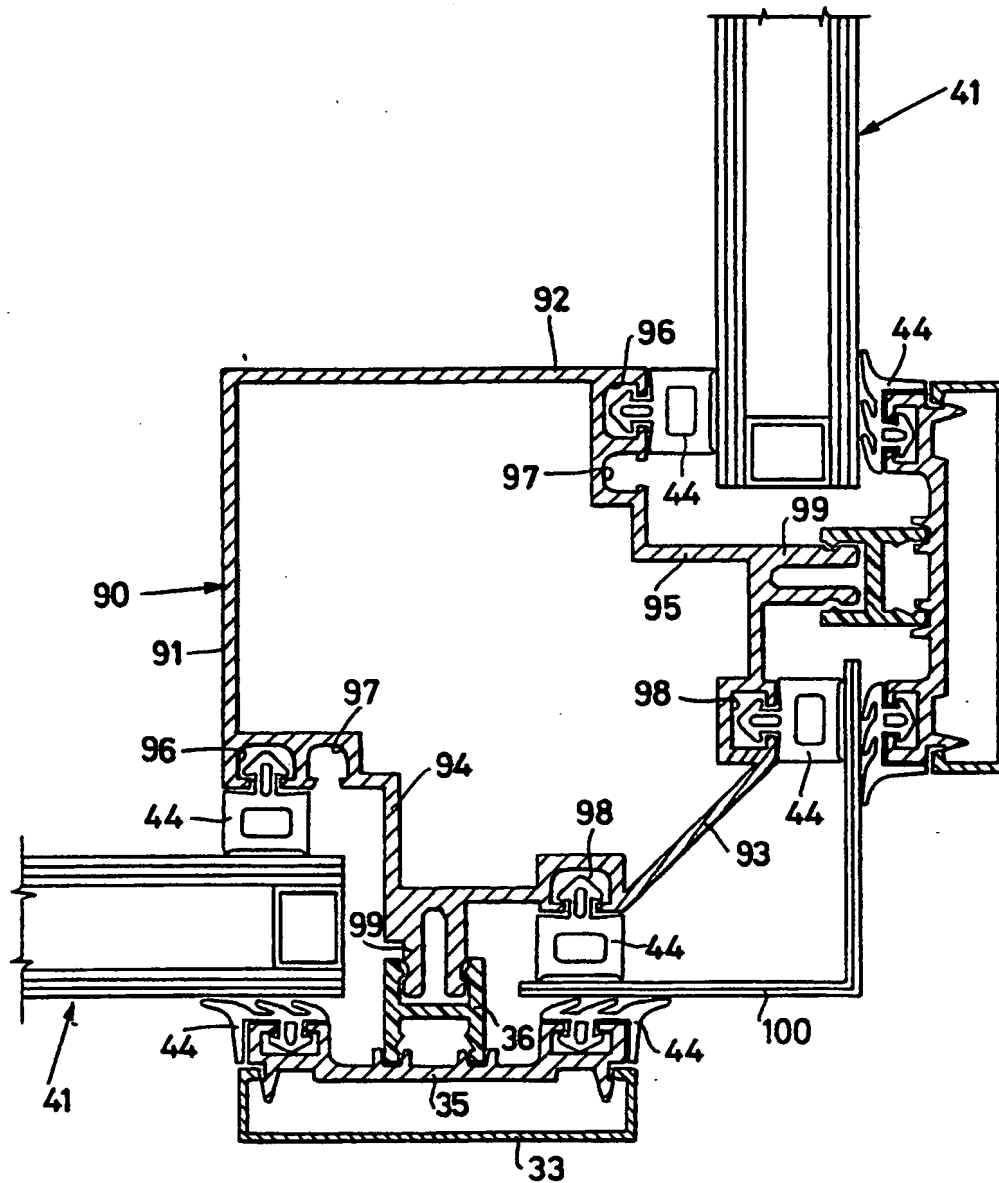


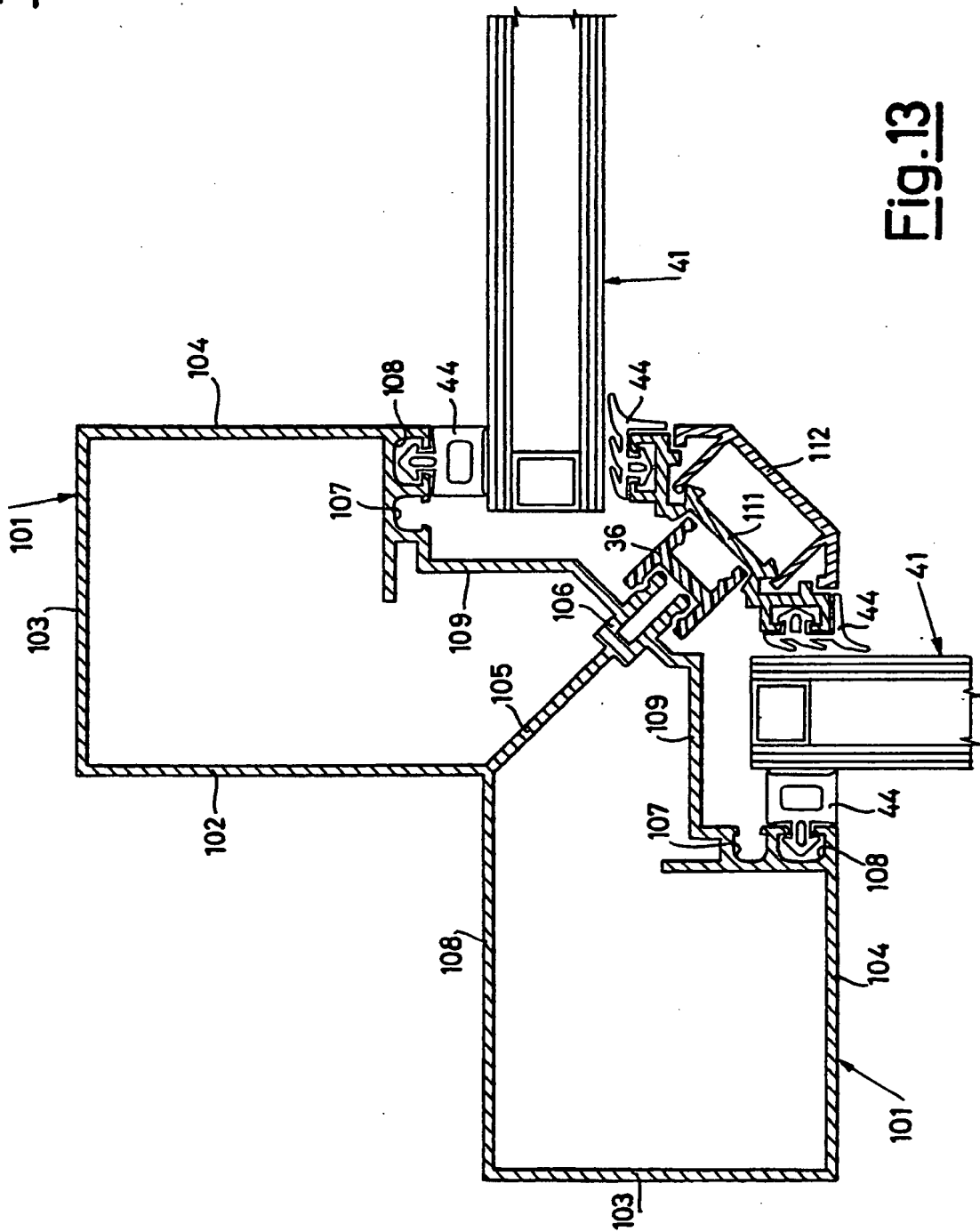
Fig. 11



**Fig.12**



Tav. XIII



Tav. XIV

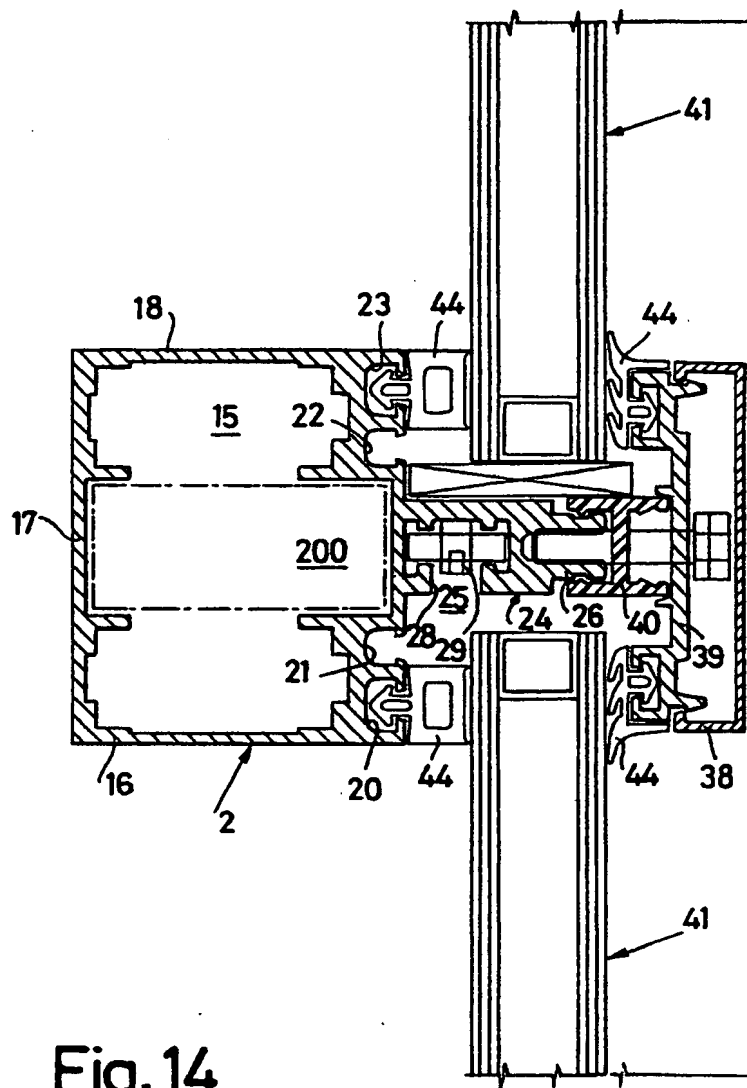


Fig. 14

Tav. XV

